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May 6th, 1862.

Dr. LE CONTE in the Chair.

Sixteen members present.

Mr. Cope stated that one of the few described species of North American serpents not known to the zoologists of our country, the *Carpophis Harpesti* of Dum. and Bib., had been recently discovered in Texas. It belongs to the genus *Virginia*, of Baird and Girard.

May 13th, 1862.

Mr. VAUX, Vice-President, in the Chair.

Nineteen members present.

May 20th, 1862.

Mr. LEA, President, in the Chair.

Twenty-seven members present.

The following papers were presented for publication, and referred to Committees :

Catalogue of the Fishes of Lower California, in the Museum of the Smithsonian Institution, etc. Pt. III. By Theo. Gill.

List of the Pseudo-neuroptera of Illinois, etc. By Benjamin D. Walsh, M. D.

Revision of the Gulls of North America. By Elliott Coues.

Catalogue of Birds, collected by the North Pacific Exploring Expedition, etc. By John Cassin.

May 27th, 1862.

Dr. BRIDGES, Vice-President, in the Chair.

Twenty-one members present.

On Report of the respective Committees, the following papers were ordered to be published in the Proceedings :

Catalogue of the FISHES of Lower California, in the Smithsonian Institution, collected by Mr. J. Xantus.

BY THEODORE GILL.

PART III.

Family PERCOIDÆ (Cuv.)

Subfamily SERRANINÆ (Sw.) Gill.

Genus BRACHYRHINUS Gill.

BRACHYRHINUS CREOLUS Gill.

Synonymy.

Serranus creolus Cuv. et Val. Hist. Nat. des Poissons, tome ii. p. 265.

" " Cuv. Règne Animal, ed. Ill., *Ichthyologie*, pl. 8, fig. 1.

The *Brachyrhinus* of Lower California is undistinguishable by me from the *B. creolus* of the West Indies and South America. The proportions, number 1862.]

of rays (D. IX—19. A. III. 9,) and of scales (L. l. 85—95,) and color, especially the four round violet dots, are the same in the fish of the Pacific Ocean as in that of the Caribbean Sea; I am therefore compelled to regard the two as identical. The *Brachyrhinus colonus* (*Serranus colonus* Val.) of the Gallapagos Islands appears to differ in color, the number of the rays and the size of the scales.

Genus *EPINEPHELUS* (Bloch) Gill.

EPINEPHELUS SELLICAUDA Gill.

The height equals about three tenths ($\cdot 29$) of the total length. The head forms considerably more than a third ($\cdot 36$) of the same length; it is wholly covered with small, closely appressed scales, the only naked external parts being the supramaxillary bones and lips. The eye in diameter equals a sixth of the head's length, and is distant more than a fourth ($\cdot 8\frac{1}{2}$) from the snout. The preoperculum is oblique and scarcely denticulated along its upper half, vertical and more coarsely denticulated towards the angle and thence decurved forwards. There are three opercular spines, the upper of which is concealed. The caudal enters nearly five times and a half ($\cdot 18$) in the length and nearly equals the pectoral fins. The ventrals scarcely equal a seventh ($\cdot 14$) of the length.

D. XI. 17. A. III. 8.

The color is purplish brown, sparsely covered with white spots which extend more or less on the dorsal, anal, pectoral, and ventral fins. The caudal peduncle has a black saddle-like spot behind the dorsal fin. The posterior margins of the pectoral and external margins of the ventrals have white lines. The spinous dorsal has the incised membrane hyaline bordered below by a linear black band. The caudal is immaculate.

The species is perhaps most nearly allied to the *E. awoara* (*Serranus awoara* Fauna Japonica) of Japan, and the *Epinephelus niveatus* (*Serranus niveatus* C.V.) of the West Indies.

Genus *DERMATOLEPIS* Gill.

This genus is very closely related to *Lioperca*, of which the *Serranus inermis* Val. of the Caribbean Sea, is the type. It differs from *Lioperca* by the absence of the canine teeth on each side of the front of the upper jaw, by the little increase in size of the teeth of the posterior rows near the symphysis, the short and bluntly rounded pectoral fins, the regular increase of the three small anal spines, and the obsolescence of the upper spiniform process which is concealed in the skin. The teeth are in broad bands in front, separated by a narrow smooth symphyseal area, and become recumbent backwards and inwards in the internal rows. The usual trilobation (not spines) of the operculum is indistinct.

DERMATOLEPIS PUNCTATUS Gill.

Proc. Acad. Nat. Sciences of Phila., vol. xiii. 1861, p. 54.

One specimen stuffed is in the museum.

Subfamily RHYPTICINÆ Gill.

Genus *RHYPTICUS* Cuv.

RHYPTICUS XANTI Gill.

The greatest height equals a fourth or more of the total length. The head to the end of the opercular membrane equals three-tenths ($\cdot 30\frac{1}{2}$) and projects considerably beyond the spine ($\cdot 01\frac{1}{4}$); its height behind the eyes enters nearly five times and a half ($\cdot 18$) in the total length, and the greatest height at the nape more than five times ($\cdot 21$.) The eye is moderately small, its diameter ($\cdot 4$) being more than half as long as the snout. The pectoral fin enters more than $6\frac{1}{2}$ times ($=15\frac{1}{2}$) in the total length.

D. III. 24. A. 16.

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The color is a very dark purplish brown, darker on the fins and on the trunk, irregularly mottled with lighter brown spots.

Two specimens of this species are in the collection, one thirteen inches and a half long, and the other little more than five inches long. In color it most resembles the *Rhypticus nigripinnis* (Gill) from Panama, but that has only two dorsal spines, and might therefore perhaps more properly be referred to the genus *Promicropterus*. I dedicate it to Mr. Xantus, who has made the magnificent collection, of which a part is here described.

RHYPTICUS MACULATUS Gill.

The greatest height equals a quarter of the total length. The head, exclusive of the membrane, forms 27-100, and inclusive of it 29-100 of the length; the height immediately behind the eyes equals 13-100, and at the nape 18-100 of the same. The eye of the single small specimen in the collection has a diameter longer than the snout, and equal to a fifth of the head's extreme length. The pectoral fin equals a sixth of the total length.

D. III. 24.

The color is reddish brown on the body and head, thickly covered with yellowish spots about as large as the pupil of the eye. The fins are blackish and immaculate, except the caudal, which is dotted on its basal half.

A single specimen, less than two inches and three quarters long, was collected.

Family *CHILODIPTEROIDÆ* Bleeker.

Genus *AMIA* Grönovius.

AMIA RETROSELLA Gill.

The greatest height exceeds a quarter (.28) of the total length; of that length the head forms more than three-tenths (.31.) The diameter of the orbit enters three times and a half (.09) in the head's length, and the snout four times and a half (.07.) The hinder margin of the preoperculum is finely denticulated; the crest entire. The spinous dorsal, at the third spine, has a height equal to an eighth (.12) of the total length, and the soft a sixth (.17) of the same. The caudal fin enters four times and a half (.23;) the pectoral fin equals a fifth (.19) and the ventral a sixth (.16) of the length.

D. VI. I. 9. A. II. 8. C. 4. I. 8. 7. I. 3. P. 2. 10. V. I. 5.

2
Scales 25—.

8

The color is reddish yellow, minutely dotted with black, with a black spot on the operculum, another on the end of the caudal peduncle, and a vertical band below the soft dorsal fin. The unpaired fins are more or less thickly punctulated with black.

This species is related to *Amia dovii* (*Apogon dovii* Gthr.), but the saddle-like band under the second dorsal fin at once distinguishes it; is also closely allied to *A. maculata* (*Monoprion maculatus* Poey.)

Family *SPAROIDÆ* Cuv. Gill.

Subfamily *LUTJANINÆ* Gill.

LUTJANUS NOVEMFASCIATUS Gill.

The greatest height exceeds a quarter of the extreme length. The head forms rather more than three-tenths of the same, (.31;) the snout enters three times and a half (.09) in the head's length, and the diameter of the eye about four times and a half (.07.) The teeth are in a longitudinal band on the tongue. The anterior nostril has a membranous flap or lid behind. The preoperculum has a shallow emargination; the interoperculum a blunt trihedral
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tubercle. The fourth dorsal spine equals a tenth of the total length and is a quarter longer than the ninth, which is shorter than the tenth. The second anal spine is strongest and rather larger than the ninth dorsal one. The caudal is nearly truncate when expanded, and forms a fifth of the total length. The pectoral and ventral fins are equal, and contained about five times and a half in the length.

D. X. 13-14. A. III. 8.

7
Scales 48—
18

The color is purplish brown, lighter at the centres of the scales, and with nine faint vertical bands, the second under the front of the dorsal, the sixth under the union of the spinous and soft parts, and the last behind the dorsal. The margin of the dorsal and caudal is dark. The front of the soft anal near the angle white; the base of the pectoral dark.

Subfamily HOPLOPAGRINÆ Gill.

Genus HOPLOPAGRUS Gill.

Proc. Academy of Nat. Sciences of Phila., 1861, p. 78.

Body oblong-ovate, compressed, with the caudal peduncle short, covered with moderate or rather large oblique scales, similar to those of the typical Sparoids and arranged in longitudinal rows parallel with the lateral line. Head moderate, with the profile not much arched but declining rapidly downwards. The operculum and suboperculum are covered with large scales; the cheeks with about five rows of scales; the limb of the preoperculum naked. The preorbital bone is very high, and its hinder margin concealed. The preoperculum is notched above its angle for the reception of a knob of the interopercular bone. Its ascending margin and angle are finely pectinated, as is also the suprascapular bone. The operculum is obtusely biangulated behind. Mouth of normal size; the ascending branches of the intermaxillaries are shorter than the horizontal ones. Teeth on the jaws and *front of the vomer*; there are four robust but blunt canines in each jaw, near the symphysis in an anterior row; another row of obtusely conical ones, behind in which, in the upper jaw, is at least one row of smaller molar or fusiform ones. Behind the row of conical ones of the lower jaw, there is, on each side of the median line, about one molar. There are also about three short and obtusely conical molars on the front of the vomer. Nostrils distant; the posterior are elongated oval slits in front of the eyes; the anterior are tubular and situated at the anterior margin of the snout. Branchiostegal rays five on each side. Dorsal fin with a deep notch between its spinous and soft portions; the anterior part with ten spines. Anal fin with three moderate but stout spines, the second of which is largest. Caudal fin emarginated. Pectoral fins subfalcate and acuminate. Ventral fins acuminate, with its axillar scales well developed.

The species for which we have framed the genus above described, is one of the most interesting that has been for some time made known. It furnishes additional evidence of the slight value of the presence or absence of teeth on the palatine arch as a character for distinguishing families, and at the same time it confirms the propriety of approximating the Sparoids and the Percoids, or at least the Lutjaninæ.

At first sight the observer would be inclined to refer the type of the new group to the genus *Diacope* of Cuvier, or *Genyoroge* of Cantor, or to *Mesoprion* of Cuvier. There is indeed no essential difference in external form or appearance between those several genera. There is the same nudity of the superior surface of the head and preorbital region: the same sinus above the angle of the preoperculum, and the corresponding knob of the interoperculum; the same serration of the preoperculum and suprascapular; the same two blunt spinous

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processes of the operculum; the same form and disposition of the fins, and the same structure of the scales. Almost the only external difference that would be esteemed as of more than specific value relates to the position and form of the nostrils. And yet the fish now to be described does not belong to the same family as *Diacope* or *Genyoroge*, if the Sparoids and Percoids are regarded as being distinct families simply on account of dentition. For the present species is found, on further investigation, to be provided with teeth like those of the Sparine subfamily of the Sparoids, while *Diacope* or *Genyoroge* has teeth somewhat like *Serranus*, and has been by all naturalists referred to the family of Percoids and placed near *Serranus*. The number of branchiostegal rays is also less than that of the Lutjanine genus.

HOPLOPAGRUS GUENTHERII Gill.

Proc. Academy of Nat. Sciences of Phila., vol. 1861, p. 78.

The greatest height equals a third ($\cdot 35$) of the extreme length. The head forms three-tenths ($\cdot 30$) of the same. The profile is scarcely curved; the forehead slightly gibbous. The snout equals nearly half ($\cdot 14\frac{1}{2}$) of the head's length; the height of the suborbital from the eye to the angle of the mouth is less than a third of the same ($\cdot 09$.) The diameter of the orbit equals a fifth of the head's length. The posterior nostril tube is an elliptical aperture. The preopercular sinus is semicircular; the interopercular knob moderate and oblique. The spine of the dorsal increases in a curve to the fourth spine, which equals an eighth of the total length, and is more than twice as long as the last two ($= 05\frac{1}{2}$.) The anal spines regularly increase, the first being contained seven times and a half ($\cdot 04$) in the head's length, while the second is nearly and the third quite twice as long as the first. The caudal fin is little emarginated, and the angles nearly rectangular; the external rays equal about $\cdot 22$ and the median about $\cdot 18$ of the total length. The pectoral fins are produced and pointed as usual, and nearly equal three-tenths of the length ($\cdot 28$.) the ventrals equal a fifth ($\cdot 20$.) The rows of scales above the lateral line are parallel with it, and those below nearly straight and longitudinal.

D. X. 14. A. III. 9. C. 2. I. 8. 7. I. 1. P. 2. 15. V. I. 5.

Scales 43 (3) $\frac{8}{17} \frac{4}{6}$

The color of the stuffed specimen is uniform purplish brown.

I dedicate the fine species to the excellent Günther in token of appreciation.

Subfamily PRISTIPOMATINÆ Gill.

Genus HÆMULON Cuvier.

This genus as here adopted is restricted to Pristipomatinae, with large mouths, the spinous dorsal increasing in a curved line towards the third, fourth or fifth spines and thence gradually decreasing, and the scales of moderate size, arranged in more or less oblique rows, so that the nuclei or the spots on each scale form interrupted lines that tend obliquely upwards and form acute angles with the lateral line. The anal spines are robust, and the second is generally largest. The genus, however, requires still further restriction.

HÆMULON SCUDDERII Gill.

The greatest height enters less than three times and a half ($\cdot 28$) in the total length, and is little greater than the length of the head ($= \cdot 27$.) The diameter of the eye equals a third of the head's length, and is nearly as long as the snout. The supramaxillary bones reach behind nearly to the vertical of the pupil. The teeth of the front row in each jaw are strongly and abruptly curved. The preoperculum is emarginated behind and is pectinated, especially at the angle. The dorsal fin increases in a curve to the fourth spine, which is half as

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long as the body beneath, (.14,) and two and a third times as long as the eleventh spine. The second anal spine is longest and nearly equals the fourth dorsal one. The caudal forms more than a fifth (.22) of the length, and the pectoral equals a fifth (.20.)

1	6
D. XI. I. 16. A. III. 7 —.	Scales 52 —.
1	14

The color is greenish silvery, with faint oblique lines formed by the central dots on the scales above the lateral line, and less oblique ones below. There are two lateral bands; one from the snout over the eye to the end of the dorsal, and the other from the back of the eye to an oblong spot on the caudal peduncle. The fins are nearly colorless. The preoperculum has a blackish brown spot behind partly concealed.

I dedicate this species to Mr. Scudder, already favorably known as an Entomologist, and now engaged in the study of *Hæmulon* and the allied genera.

HÆMULON SEXFASCIATUS Gill.

The greatest height is nearly equal to three-tenths (.29) of the extreme length, and barely exceeds the head's length (= .28.) The diameter of the eye nearly equals a third of the latter length as well as the length of the snout. The supramaxillary bones reach behind nearly to the vertical from the front of the pupil. The teeth of the external row in the upper jaw are strongly curved; those of the lower much less. The preoperculum is emarginated behind by the production of its angle and is dentated. The dorsal fin is highest at its fourth or longest spine, which nearly equals an eighth (.13) of the total length, and its last spines are much abbreviated, the eleventh little exceeding a quarter of the fourth (.63½.) The second anal spine is as long or longer than the fourth dorsal. The caudal and pectoral fins are nearly equal, and contained about four and a half times (22—23) in the total length.

1	7
D. XI. I. 16. A. III. 9 —.	Scales 50 —.
1	18

The color is greyish-silver, with six broad bands on the body, the *first* between the nape and dorsal fin; the *second* under the first five spines; the *fourth* under the last spines, and the sixth mostly behind the dorsal fin.

HÆMULON FLAVIGUTTATUS Gill.

The greatest height does not much exceed a quarter of the extreme length, (.27.) of which the head forms a quarter. The eye's diameter equals a quarter of the head's length, and is less than the length of the snout. The supramaxillary bones end under the front of the pupils. The preoperculum is little emarginated behind and is pectinated. The fourth dorsal spine is longest, and equals a ninth (.11) of the total length; the eleventh is as long or longer than the twelfth or second dorsal one, and equals a twentieth (.5) of the length. The second anal spine equals an eleventh of the length. The caudal fin forms scarcely a fifth of the length, and the pectoral enters four times and a half in the same.

D. XI. I. 16. A. III. 10.

7
Scales 53 —.
16

The color is greyish, with sulphur-colored spots in the centre of each scale, forming above the lateral line and below the spinous dorsal oblique lines tending upwards and backwards, and on the caudal peduncle longitudinal lines, while under the lateral line they form longitudinal undulating lines.

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Genus ORTHOSTÆCHUS* Gill.

This genus is proposed for species which differ from *Hæmulon* by the arrangement of the scales above as well as below the lateral line in longitudinal rows, and the straight course of the anterior portion of the lateral line. In other respects it resembles *Hæmulon*. The arrangement of the scales approximates it rather to the genera *Pristipoma* (*hasta*) and *Conodon* of Cuvier, but the dorsal and anal fins in both of those genera are scaleless.

ORTHOSTÆCHUS MACULICAUDA Gill.

The greatest height equals 28-100ths of the total length, and the head rather more than a quarter. The diameter of the orbit equals a quarter ($\cdot 07$) of the greatest height, and is less than the length of the snout ($= \cdot 08$.) The supra-maxillary bone ends under or somewhat behind the front of the pupil. The teeth of the external row are of moderate size and moderately curved. The preoperculum is emarginated behind and pectinated or dentated. The fourth dorsal spine equals or exceeds a ninth of the total length, and is scarcely shorter than the third and fifth, while it is nearly three times as long as the twelfth, which itself is shorter than that in front of the second dorsal. The second anal spine equals a tenth of the total length. The caudal fin forms less than a fifth, and the pectoral fin enters about four times and a third in the length.

D. XII. I. 16. A. III. 10.

7

Scales 47 —.

16

The color is purplish grey, with longitudinal lines on the body formed by yellow spots in the centre of each scale, and with an oblong black spot on each side of the end of the caudal peduncle.

There are sometimes irregularities in the squamation. In the collection are four varieties.

1st. With all the rows straight.

2d. With the third row below the lateral line in front decurved and continued, as the fourth row, to the caudal.

3d. With the second row below the lateral line in front bent upwards and confluent with the first row.

4th. With the first row above the lateral line in front bent upwards and continued as the second row to the caudal.

These aberrations are caused by the displacement of the rows, and correspondingly affect the rows above or below. They exhibit the tendency to revert to the arrangement of scales of *Hæmulon*.

Genus MICROLEPIDOTUS Gill.

The present is closely related to *Hæmulon* and *Orthostæchus*; it differs from the latter by the arrangement of the scales above the lateral line in oblique rows, and from both in the following characters:—

1st. The scales are small. 2d. The mouth is rather small. 3d. The second dorsal spine is at least half as long as the third, which equals or surpasses the others. 4th. The anal spines are rather small and graduated, the third being longest. 5th. The dorsal and anal fins are scaleless. In other respects the genus resembles *Hæmulon*.

It differs from *Pristipoma* (*hasta*) by—

1st. The small scales, obliquely arranged. 2d. The rather smaller mouth. 3d. The development of the anterior dorsal spines. 4th. The small and graduated anal spines.

The name *Microlepidotus* is given to the genus in imitation of *Hemilepidotus*.

* *Ὀρθός* (straight) and *στρίχτος* (row.)

MICROLEPIDOTUS INORNATUS Gill.

The greatest height equals or nearly equals a quarter of the extreme length. The head equals the height; the diameter of the orbit enters about four times and a third ($\cdot 05\frac{1}{2}$) in the head's length, and the snout three times and a half, ($\cdot 07$.) The supramaxillary bone ends under the posterior nostril. The teeth of the outer row are moderate and curved. The preoperculum is little emarginated behind, and is pectinated as usual. The first dorsal spine is weak, and not half as long as the second; the second spine is two-thirds as long as the third; the latter equals a tenth of the length, and is about as long as the fourth and fifth; the rest decrease towards the thirteenth, which is half as long as the second spine. The third anal spine is largest; its length does not equal half that of the third dorsal spine ($\approx \cdot 04\frac{1}{2}$.) The caudal fin scarcely forms a fifth of the length ($\cdot 19$), and equals the length of the pectoral.

D. XIII. I. 15. A. III. 12.

9
Scales* 80—85 —.
23

The scales of the lateral line behind are as large as the others and as much exposed. The color is brownish, tinged with a golden hue.

Genus GENYTREMUS Gill.

This genus is proposed for the *Pristipoma bilineatum* Cuv. et Val., the species described below and the *P. melanopterum*, which are the only ones that I am able to positively refer to the genus. They differ from the *Anisotremi* by the less elevated body, depressed nape, the dorso-ocular region being incurved, the oblique snout, the more rapid increase in width of the pharyngeal bones behind and the pattern of coloration.

The *Pristipoma bicolor* of Castelnau, which is supposed by Dr. Günther to be, perhaps, "a variety only" of *P. melanopterum*, "or the type of the species, but with the coloration made from life," appears to me to be a typical *Anisotremus*, alike distinguished as such by form and pattern of color.

The *Diagramma cavifrons* Cuv. appears to represent a genus separated from *Genytremus* by the absence of a chin groove, the low preorbital bones, decurved snout and the presence of thirteen dorsal spines, which less rapidly decrease in length. The genus may be called *Genyatremus*.†

GENYTREMUS INTERRUPTUS Gill.‡

This species is so closely allied to the *G. bilineatus* that it might be even considered as a variety, but it appears to differ by the steel blue color of the back and the discontinuance of the lateral band a short distance before the spot on the tail; at its end, the band is bounded below by the lateral line. In other respects, the two species are so similar that a detailed description would be only a repetition of that of *G. bilineatus*, and is not necessary in the present paper.

Family MULLOIDÆ.

Genus UPENEUS Cuvier.

UPENEUS DENTATUS Gill.

The greatest height is less than a fifth ($\cdot 18$) of the extreme length. The

* The number of rows of scales and not the number through which the lateral line runs is counted.

† The *Pristipoma cantharinum* of Jenyns is the type of another Pacific genus, distinguished by the form of the head, the form of the fins and the squamation. The preorbital region is oblique and very deep. The genus may be named *Pristocantharus*.

‡ *Anisotremus taniatus* Gill, Proc. Acad. Nat. Sciences, Phila., vol. xiii. p. 107.

Pristipoma rodo Morris, Proc. Acad. Nat. Sciences, Phila. vol.

Habitat.—Panama.

This is another species closely allied to a West Indian fish, but is undoubtedly distinct.

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head forms a quarter of the length, and its height at the nape equals a sixth of same; the snout is gradually decurved, and its length equals an eleventh ($\cdot 09$) of the total; the height of the preorbital bone at the angle of the mouth equals two-thirds ($\cdot 06$) the length of the snout. The diameter of the eye nearly equals a third ($\cdot 08$) of the head's length. The barbels extend nearly to the vertical of the preoperculum. The teeth are rather strong; in the upper jaw uniserial, in the lower biserial in front. The caudal fin forms more than a fifth ($\cdot 22$) of the total length, and the pectoral fin equals a sixth of the same.

	1	1	2
D. VII. I. 7 —.	A. I. 5 —.	Scales 37 —.	
	1	1	6

The color is a bright pink or rose, with a broad red band extending from the eye to the caudal fin, and suffusing the caudal itself.

This species is as closely related to the *Upeneus flavivittatus* (Poey) of the Caribbean Sea as any other species, but differs widely in dentition as well in the size of the scales, &c.

Three specimens, nearly four inches long, are in the collection.

Family *SCIÆNOIDÆ* (Cuv.) Gthr.

Subfamily *SCIÆNINÆ* (Bon.) Gill.

UMBRINA DORSALIS Gill.

The greatest height equals three-tenths ($\cdot 30$) of the extreme length. The head forms a quarter ($\cdot 25$) of the length and declines nearly in a straight line; at the vertical of the preopercular angle its height equals $\cdot 22$, and at the pupil $\cdot 17$ of the total length. The diameter of the eye equals a third of the head's length, and that of the snout a quarter. The barbel is very short and thick. The preopercular teeth behind are small and distant.

The spinous dorsal is convex; the second anal spine strong and equal to a tenth of the total length. The caudal fin is subtruncated, and forms a fifth of the length. The pectoral enters six times and two-thirds ($\cdot 15$) and ventral five times and a half ($\cdot 18$) in the same length.

D. X. I. 33. A. II. 7.

	8
Scales 56 —.	
	14

The color is silvery, tinged on the back with rose. The upper half of the dorsal fins are sometimes punctulated with black.

UMBRINA XANTI Gill.

The height is rather less than a quarter ($\cdot 23$) of the total length. The length of the head equals the greatest height, and is nearly a quarter greater than the height at the preopercular angle ($\cdot 18$) and twice that at the pupil ($\cdot 12$). The diameter of the orbit nearly equals a third ($\cdot 07$) of the head's length, while the snout enters about four times and a half ($\cdot 05$) in the same. The barbel is short and moderately thick. The teeth of the preoperculum behind small and distant. The spinous dorsal is rather angular; the second anal spine not robust and equalling an eleventh ($\cdot 09$) of the total length. The caudal enters five times and a half in the length; and its margin is nearly truncated. The pectoral fin rather exceeds an eighth ($\cdot 13$) and the ventral a seventh ($\cdot 15$) of the length.

D. X. I. 28. A. II. 6.

	7
Scales 51 —.	
	12

The color is silvery, tinged with purplish on the back, and with faint oblique

lines running upwards and backwards. The first dorsal is generally more or less punctulated with black.

Many specimens were obtained. The species is, perhaps, most nearly related to the *U. broussonettii* (Cuv. et Val.) of the West Indies, but differs widely in color, size of the scales, &c.

A species of Sciænoid of California has been described by Dr. Girard as *Umbrina undulata*. I have not been able to examine the species, the only specimen having been lent to Mr. Scudder, of the Cambridge Zoological Museum, who is now engaged in the study of *Hamulon* and the related genera. I am unable to judge, from the description of Girard, to what this species is most nearly related. On account of the presence of a single spine and nine rays in the anal fin, it was formerly referred to *Menticirrhus*, but if Girard is correct in describing the caudal fin as "posteriorly subtruncated," it can scarcely belong to that genus. Girard states that "a small spine is placed between the two dorsal fins, and a similar one at the anterior margin of the second dorsal," and attributes "XI." spines to the first dorsal. Doubtless the membrane had been simply torn from the "small spine," and it is possible that he included the spine of the second dorsal as the eleventh. He must certainly be mistaken when he attributes only four (IV.; IV.) branchiostegal rays to the species. The color resembles that of *Umbrina Xanti*.

Family POLYNEMATOIDÆ Bleeker.

TRICHIDION APPROXIMANS Gill.

Proc. of the Academy of Nat. Sciences of Phila., vol. xiii. p. 275.

Polynemus approximans Lay and Bennett, Beechey's Voyage to the Pacific, Zoology, p. 57.

Polynemus xanthonemus? Günther, Catalogue of the Acanthopterygian Fishes, &c., vol. ii. p. 325.

Many specimens were collected.

Family NEMATISTIOIDÆ Gill.

Genus NEMATISTIUS Gill.

Body oblong or rather elongated, compressed, regularly diminishing in height towards the caudal; the caudal peduncle is slender but robust. Scales cycloid and small, but very conspicuous, and arranged in moderately oblique rows above and less oblique ones below. Lateral line simple and unarmed, scarcely convex before and not angulated. Head little longer than high, compressed and trenchant above, with the profile strongly decurved from the dorsal fin to the eyes, and with the snout oblique. Eyes in the anterior half of the head, near the snout and the profile. Nostrils double, in front of the eyes. Sub-orbital bones low. Opercula unarmed. Mouth rather large; the cleft very oblique and continued under the eyes. Teeth villiform and small, especially on the vomer and palatine bones. Branchiostegal rays six. Dorsal fins two, folding in a deep sheath; the first with eight filamentous spines; the second low and elongated. Anal fin low and oblong, shorter than the second dorsal and with one spine. Caudal fin forked and acutely lobed. Pectoral fins acuminate. Ventral fins inserted under the bases of the pectorals; each with a long, slender, compressed spine contiguous to the first ray and with six rays, the internal of which is compound, and has several contiguous branches nearly or quite distinct.

This very remarkable genus may be most aptly compared to *Coryphæna*. A more vivid idea of its physiognomy can be obtained by a comparison with the *Coryphæna hippuris*; if that species was somewhat abbreviated, the eye placed over the posterior half of the cleft of the mouth and nearer the profile, the single dorsal replaced by two, the first commencing above the pectoral and 1862.]

with eight filamentous spines, and the pectoral fin elongated, it would resemble a *Nematistius*.

The peculiar modification of the ventral fins reminds the naturalist of the genus *Lampris*, the type of a peculiar family, but in other respects it is little related. On account of this modification of the ventral fins, as well as the development of the dorsal fins and the form, it appears expedient to consider it as the type of a distinct family, allied to the Carangoids and Coryphænoids.

NEMATISTIUS PECTORALIS Gill.

The greatest height equals or exceeds a quarter of the length from the snout to the end of the median caudal rays. The head nearly equals the height, and the height at the nape is not much less ($\cdot 22$ — $\cdot 24$.) The direct distance between the orbits equals a third of the head's length; the orbit has a diameter equal to a fourth of the same length, is distant from the horizon of the forehead half a diameter, and from that of the snout little more than a diameter. The height of the suborbital bone equals a third of the diameter. The origin of the anal fin is nearly equidistant from the throat and the end of the caudal. The pectoral equals about three-tenths of the length and is nearly twice as long as the ventrals. The median rays of the caudal fin equal the length of the snout and quarter that of the longest.

D. VIII. I. 26. A. I. 15. P. I. 1. 14. V. I. 5—4.

The color of a dried specimen is plumbeous on the back and operculum, and silvery on the sides of the head as well as body. The dorsal filaments are black; the lower half of the pectoral fin is also blackish.

The following table of measurements is taken from the dried specimen, the only one obtained. It has been registered as No. 2421.

Length from snout to end of median caudal rays (16 inches) 100. Body—greatest height 26. Height behind dorsal and anal $\cdot 09$. Height of caudal peduncle $\cdot 06$. Length of caudal peduncle $\cdot 11$.

Head—Length laterally 24. Height at nape 22. Width between orbits $8\frac{1}{2}$. Length of snout $6\frac{1}{2}$. Height of suborbital bone 2.

Eye—Diameter 6. Distance from profile 3.

Dorsal (spinous)—Length of first spine $6\frac{1}{2}$. Length of second spine 31. Length of third spine 55. Length of fourth spine 53. Length of fifth spine 52. Length of sixth spine 41. Length of seventh spine 36. Length of eighth spine 43.

Caudal—Length of median rays $6\frac{1}{2}$. Length of longest rays 25.

Pectoral—Length 31.

Ventral—Length 16.

Family CIRRHITOIDÆ (Gray.)

Subfamily CIRRHITINÆ (Blkr.) Gill.

Genus CIRRHITUS Lac.

CIRRHITUS RIVULATUS Val.

Voyage de la Vénus, Zoologie, p. 309, pl. 3. fig. 1. *Günther*, Catalogue of the Acanthopterygian Fishes, &c., vol. ii. p. 519. *Gill*, Proc. Academy of Nat. Sciences of Phila., &c., vol. xiv. 1862, p. 107.

A single stuffed specimen, fifteen inches long, was sent to the Institution by Mr. Xantus.

CIRRHITUS BETAURUS Gill.

The greatest height exceeds a quarter ($\cdot 27$) of the extreme length, and the head forms nearly a third ($\cdot 32$) of the same. The preoperculum is serrated behind. In the small specimen now described, the diameter of the orbit is contained little more than three times and a half in the head's length and equals the snout. The fourth dorsal spine is longest, and equals a ninth of 1862.]

the total length. The second anal spine is largest, and equals the fourth dorsal one; the longest soft ray enters six times and two thirds in the total length. The caudal fin is slightly emarginated and nearly equals a fifth of the length. The produced pectoral ray rather exceeds a quarter of the length, and the ventral fins enter five times and a half in the same.

1
D. X. 11. A. III. 5 —. P. 6. VI. V. I. 5.
1

The color is *whitish* on the body, blackish on the shoulders and from the dorsal fin to the eyes, and with four complete, oblique, blackish bands; the first under the middle of the spinous dorsal; the second under the last spine; the third under the middle of the soft dorsal, and the fourth encircling the caudal peduncle. The head has three lateral bands, one on the preorbital region, a second on the cheek, and third on the posterior margin of the preoperculum. The operculum has a longitudinal oblong spot. The chin has four spots forming the angles of a rhomb, and there is another one behind, on the branchiostegal membrane near the margin. The spinous dorsal is margined with blackish, and the two bands beneath more or less ascend on it; anal blackish. The caudal has a blackish B-shaped mark and a band at its base divided by the lateral line. The pectoral is dusky, with a black spot at its base nearly surrounded by a clear area, and separated from a spot in front of the base. The ventrals are blackish, with nearly transparent sides and margin.

This species is very distinct, readily recognized by the color, and especially the large mark on the caudal fin,—in allusion to which the name has been given. It is, perhaps, most nearly allied to *Cirrhitus aprinus*. One specimen, scarcely an inch and a half long, was obtained.

Family *SCOMBROIDÆ* (Cuv.) Gill.

Subfamily *SCOMBRINÆ* Swainson.

Genus *SCOMBER* (L.)

SCOMBER *DIEGO* Ayres.

Proc. California Academy Nat. Sciences, vol. i. p. 92.

Three specimens of a species which is doubtless identical with the one described by Dr. Ayres, were obtained.

Family *CARANGOIDÆ* Blkr.

Subfamily *CARANGINÆ* (Bon.)

Genus *TRACHURUS* (Raf.)

TRACHURUS *SYMMETRICUS* Girard.

Caranx symmetricus Ayres, Proc. California Academy of Nat. Sciences, pt. 1, p. 62.

Trachurus trachurus pt. *Günther*.

After an examination of numerous specimens, I am unable to discover any valid reasons for uniting the European, Japanese and Californian fishes in one. They differ in the course of the lateral line, the comparative size of the pectoral, &c., and can be readily distinguished at the first glance. The Californian species has the flexure very abrupt and oblique, and the pectoral fin equal to the length of the head before the preoperculum. The *Trachurus declivis* of the Australian seas is not represented in the Smithsonian Collection, but I am disposed to believe that that species may also be distinguished from the Japanese species, to which it is most related. At another time I will again revert to this subject.

[May,

It may be remarked, that the *Trachurus boops* of Girard is a typical *Caranx* of Bleeker, and nearly allied to a species previously placed by Girard in a genus called by him "*Carangus* Girard." Dr. Günther has called attention to the discrepancy between Girard's diagnosis of *Trachurus* and that of *Trachurus boops*. The name of *Caranx boops* has been given by Cuvier and Valenciennes to a Carangoid, but, as the species belong to different genera, the name of *Caranx boops* may be retained for the Californian fish. A near ally is the common *Caranx chrysos* (Dekay) of the Atlantic coast.

Genus TRACHUROPS Gill.

TRACHUROPS BRACHYCHIRUS Gill.

This species is very closely related to the *Trachurops crumenophthalmus* of the Atlantic, but appears to differ by the less length of the pectoral fins. The description of form, &c. would be equally applicable for the two; for the present, therefore, the following formulæ for the two specimens in the collection and the annexed table of measurements are deemed sufficient. The tips of the caudal lobes are broken in both specimens.

D. VII. + I. I. 26. A. II. I. 22.

Lateral acute plates 36, 37.

Trachurops differs from *Trachurus* by the presence of scutellæ only on the hinder half of the lateral line.

Length to end of middle caudal rays (8 1-5th-8,) 100 (+ 14.) Body—Greatest height 26·25. Distance of vertical of end of dorsal to end of median caudal rays 16·16.

Head—Greatest length 29·29½. Distance from snout to end of spine 28·28½. Width of interorbital area .07. Length of snout 8·8½. Length of operculum .07.

Orbit—Diameter 9·9.

Dorsal—Height of third spine 13·13. Height at longest ray 12·11½.

Anal—Height at longest ray 11½·10.

Caudal—Length of middle rays 7½. Length of external rays 21 + 4.

Pectoral—Length 24·24.

Ventral—Length 14·13.

Genus DECAPTERUS Bleeker.

The genus *Decapterus* of Bleeker appears to be a natural and homogeneous one, but at the same time embraces species which differ considerably in dentition, and which may consequently be distributed among sections distinguished by such differences. The dentition appears to be constant in the species and to be at least of equal value with that which has induced naturalists to subdivide the analogous family of Clupeoids.

The sections known to us are the following:

EUSTOMATODUS. Teeth on the jaws (uniserial), vomer, palatine bones and tongue.

Decapterus muroadsi Blkr. *D. kurroides* Blkr.

DECAPTERUS VERUS. Teeth on the jaws (uniserial), vomer and palatine bones. Tongue smooth.

Decapterus kurra Blkr.

GYMNEPIGNATHUS. Teeth on the lower jaw (uniserial), vomer and palatine bones. Tongue and upper jaw smooth.

Decapterus macrosoma Blkr.

EYEPGYMNUS. Teeth on the lower jaw (uniserial), and tongue. Upper jaw and palate smooth.

Decapterus hypodus Gill.

1862.]

DECAPTERUS HYPODUS Gill.

The greatest height is less than a fifth ($\cdot 18$) of the total length. The head forms a quarter of the same. The diameter of the orbit equals a quarter of the head's length, and the snout enters three times and a third in the same. The lateral line has a very slight sigmoidal flexure and is covered with very conspicuous discoid scales; the lateral line is trifid on each scale, giving out an oblique process above and another below. The teeth on the lower jaw are small and uniserial; the tongue has a longitudinal narrow band.

D. VII. I. 31--I. A. II. I. 26--I.

Lateral line (70+) 30.

The color above is greenish-blue; the opercular spot small.

Five specimens were obtained. It is, perhaps, most closely related to *Decapterus macarellus*,—the *Caranx macarellus* of Cuvier and Valenciennes, which differs at least in proportions as well as the number of rays and plates of the lateral line. The dentition has not been described, and the species is autotypically unknown to me.

BLEPHARICHTHYS CRINITUS Gill.

I have not been yet able to satisfy myself as to the specific distinction between representatives of this genus from widely separated places, and therefore prefer for the present to refer two specimens obtained by Mr. Xantus at Cape St. Lucas to the species above named.

Subfamily TRACHYNOTINÆ Gill.

TRACHYNOTUS PAMPANUS Cuv. et Val.

As in the case of *Blepharichthys*, I cannot give any positive characters to distinguish the Atlantic and Californian representatives of *Trachynotus* from each other. With Günther, I believe that *Bothrolæmus pampanus* of Hölbrook is the aged form of *Doliodon carolinus*, in which the teeth are lost. In the specimen described by Dekay, said to have the "teeth so minute as scarcely to be distinguished," I cannot distinguish even minute teeth. Trusting to the American naturalists who had, I supposed, fully studied the species, I retained in the Catalogue of the Fishes of the Eastern Coast the four species and three genera admitted by them; they are apparently, however, as stated by Günther, referrible to two species belonging to one genus.

NOTE.—Very young *Carangoids* have a *trispinous preoperculum*, and always a distinct spinous dorsal fin. *Nanclerus* and *Seriola dussumieri* are founded on young specimens of *Nancrates*.

Description of a New Genus (GONIOBASIS) of the Family MELANIDÆ and eighty-two new Species.

BY ISAAC LEA.

Family MELANIDÆ.

Genus GONIOBASIS.*

Testa vel conica vel fusiformi. Apertura rhomboidea, infernè subangulata. Columella supernè interdum incrassata. Operculum corneum, ad spiram pertinens.†

In my paper on the genus *Trypanostoma*, proposed by me, I mentioned the

* Γωνία, angle, and βᾶσις, base.

† This genus may be divided into two groups, one embracing the conical, the other, the fusiform species, and these into smooth, plicate, carinate, &c.

[May,